

Title (en)

REFLECTIVE-LAYER-EQUIPPED SUBSTRATE FOR EUV LITHOGRAPHY, REFLECTIVE MASK BLANK FOR EUV LITHOGRAPHY, REFLECTIVE MASK FOR EUV LITHOGRAPHY, AND PROCESS FOR PRODUCING REFLECTIVE-LAYER-EQUIPPED SUBSTRATE

Title (de)

MIT EINER REFLEKTIERENDEN SCHICHT AUSGESTATTETES SUBSTRAT FÜR DIE EUV-LITHOGRAPHIE, REFLEKTIERENDER MASKENROHLING FÜR DIE EUV-LITHOGRAPHIE, REFLEKTIERENDE MASKE FÜR DIE EUV-LITHOGRAPHIE UND VERFAHREN ZUR HERSTELLUNG DES MIT EINER REFLEKTIERENDEN SCHICHT AUSGESTATTETEN SUBSTRATS

Title (fr)

SUBSTRAT ÉQUIPÉ D'UNE COUCHE RÉFLÉCHISSANTE POUR LITHOGRAPHIE PAR ULTRAVIOLETS EXTRÊMES, ÉBAUCHE DE MASQUE RÉFLÉCHISSANT POUR LITHOGRAPHIE PAR ULTRAVIOLETS EXTRÊMES, MASQUE RÉFLÉCHISSANT POUR LITHOGRAPHIE PAR ULTRAVIOLETS EXTRÊMES ET PROCESSUS DE PRODUCTION DE SUBSTRAT ÉQUIPÉ D'UNE COUCHE RÉFLÉCHISSANTE

Publication

EP 2511944 A4 20140903 (EN)

Application

EP 10836043 A 20101209

Priority

- JP 2009279371 A 20091209
- JP 2009294310 A 20091225
- JP 2010021944 A 20100203
- JP 2010067421 A 20100324
- JP 2010134822 A 20100614
- JP 2010072161 W 20101209

Abstract (en)

[origin: WO2011071123A1] Provided are an EUV mask blank in which a reduction in reflectivity due to the oxidation of the Ru protective layer can be inhibited, a reflective-layer-equipped substrate used for producing the EUV mask blank, and a process for producing the reflective-layer-equipped substrate. The disclosed reflective-layer-equipped substrate for EUV lithography has a reflective layer for reflecting EUV radiation and a protective layer for protecting the reflective layer which are formed on a substrate in the aforementioned order, and is characterized in that: the reflective layer is a Mo/Si multilayer reflective film; the protective layer is a Ru layer or a Ru compound layer; and an intermediate layer containing 0.5 to 25at.% of nitrogen and 75 to 99.5at.% of Si is formed between the reflective layer and the protective layer.

IPC 8 full level

B82Y 40/00 (2011.01); **B82Y 10/00** (2011.01); **G02B 5/08** (2006.01); **G03F 1/24** (2012.01); **G03F 7/20** (2006.01)

CPC (source: EP KR US)

B82Y 10/00 (2013.01 - EP US); **B82Y 40/00** (2013.01 - EP US); **G02B 1/111** (2013.01 - KR); **G02B 5/0891** (2013.01 - EP KR US);
G02B 5/223 (2013.01 - KR); **G03F 1/24** (2013.01 - EP KR US); **G03F 7/70316** (2013.01 - EP KR US); **G03F 7/70958** (2013.01 - EP KR US);
G03F 7/70983 (2013.01 - EP KR US); **H01L 21/0274** (2013.01 - KR); **B82Y 10/00** (2013.01 - KR); **B82Y 40/00** (2013.01 - KR)

Citation (search report)

- [E] EP 2600388 A1 20130605 - ASAHI GLASS CO LTD [JP]
- [A] US 2005026046 A1 20050203 - YAN PEI-YANG [US]
- [A] EP 1717609 A1 20061102 - ASML NETHERLANDS BV [NL]
- [A] US 2004121134 A1 20040624 - BIJKERK FREDERIK [NL], et al
- See references of WO 2011071123A1

Cited by

US10345494B2; WO2018013757A3; US10787386B2

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

WO 2011071123 A1 20110616; CN 102687071 A 20120919; CN 102687071 B 20131211; EP 2511944 A1 20121017; EP 2511944 A4 20140903;
EP 2511945 A1 20121017; EP 2511945 A4 20140903; JP 5673555 B2 20150218; JP 5699938 B2 20150415; JP WO2011071123 A1 20130422;
JP WO2011071126 A1 20130422; KR 101699574 B1 20170124; KR 20120106735 A 20120926; TW 201131285 A 20110916;
TW 201131615 A 20110916; TW I464529 B 20141211; US 2012196208 A1 20120802; US 2012231378 A1 20120913; US 8580465 B2 20131112;
US 8993201 B2 20150331; WO 2011071126 A1 20110616

DOCDB simple family (application)

JP 2010072161 W 20101209; CN 201080056266 A 20101209; EP 10836043 A 20101209; EP 10836046 A 20101209;
JP 2010072169 W 20101209; JP 2011545247 A 20101209; JP 2011545249 A 20101209; KR 20127012513 A 20101209;
TW 99143004 A 20101209; TW 99143392 A 20101209; US 201213443108 A 20120410; US 201213478532 A 20120523